5th International Conference on Design Principals and Practices

Reflections on Multiple Perspective Problem Framing

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Abstract

The researchers have developed a system of value innovation modelling founded on the application of a multiple perspective problem framing theory (English 2008). This approach has been used to map the attributes of 43 businesses in order to reveal untapped value in these organisations, as described in a previous paper (2010). The system considers both the attributes of a company and the experience of the researchers as parameters in a design problem. This paper aims to show how the process can reveal value by taking the reader through a step-by-step guide, incorporating case studies to demonstrate the relationship between concepts and the development of the researcher's awareness. An integrated mapping activity provides a clear overview of the company and describes relationships between technology, intellectual property and commercialisation. This mapping process is used to reveal patterns and disharmonies, enabling the researchers to identify gaps and make connections that can lead to new business opportunities. This paper describes the mapping process in detail and the researchers reflect on the way that insights have been revealed through their development of new perspectives on each company.

Keywords: Multiple Perspective Problem Framing, Business Analysis, Value Innovation, Design Thinking
Stream: Design Research
Presentation Type: Virtual Presentation in English

Content

1. Introduction to the theory - Multiple perspective problem framing (MPPF)

A previous paper titled 'Value innovation modelling: Design thinking as a tool for business analysis and strategy' (English, Moor & Jackson 2010) describes how English's theory of multiple perspective problem framing (2007, 2008) has been used to reveal value for business. This introduction explains the origins and theory by way of summary.

Visual depictions of networks date back to ancient Greece, more recently semantic networks were created by Richens; RH (1956) defined as semantic nets for use as an 'interlingua'. This work was further developed by Collins, AM and colleagues in the 1960's - semantic memory (1969). Tony Buzan in the 1970's to 80's introduced mind mapping founded on the prior knowledge to depict a visual representation that the brain can relate to more accurately than linear outlines (1996). A radiant mind map, maps a single perspective from a single centre of enquiry. Designers use mapping techniques to map out problems to understand the problem space and find an opportunity or assist in decision making - generating concepts, new ideas and market opportunities and as a means of recording a creative event.

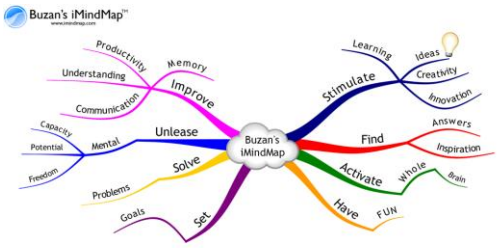

Figure 1: A radiant mind map from a single centre of enquiry – Tony Buzan website (2011)

This mapping method is based on a single centre of enquiry and enables the investigator to articulate issues of importance to that enquiry. However this approach can limit the usefulness of the data in the map, resulting in the most effective connections and decisions not being made. English (2008) expands this single centred mapping method to create multiple centres of enquiry, resulting in an integrated mapping approach that can provide a fuller picture of the potential within a situation, this is further developed into a method to assist companies in revealing hidden value (English, Moor & Jackson 2010). The researchers have built on Galbraith's organisational star model (1995) in relation to Andre De Waal's work determining 8 key factors & characteristics of high performance in companies (2006).

1. Organisational design
2. Strategy
3. Organisational process
4. Technology
5. Leadership
6. Individuals and roles
7. Culture
8. Environment

Figure 2: Galbraith's organisational star (1995) and De Waal's list of 8 key factors (2006)

English (2008) describes the need to find the right balance between creating ‘a fog of complexity’ and being unable to see the opportunities in the situation. Based on Miller (1956) and Whitehead (2007) theories on the cognitive span of the investigator, the researchers chose 6 centres of enquiry with which to assess 43 companies. The resulting MPPF star model (figure 3) provides a template to develop a coherent overview of a company enabling the investigators to operate within the defined ‘value arena’ (a framed space) and navigate the design terrain, within this space, more clearly providing the opportunity to make the right connections. The investigators call the MPPF method combined with organisational design knowledge – the ideas-lab process.

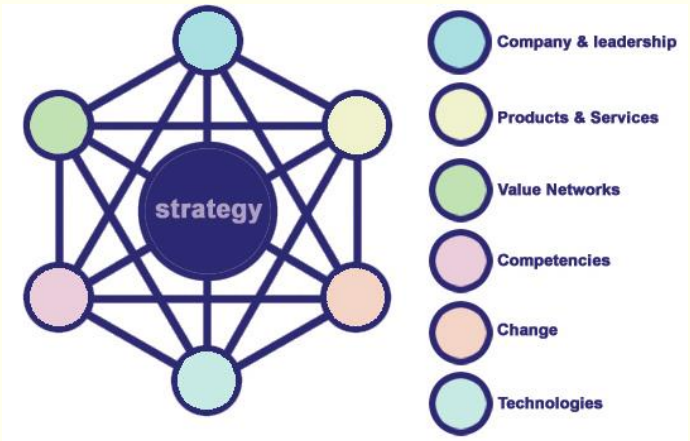

Figure 3: Multiple perspective problem framing with 6 interrelating centres of enquiry (English, Moor & Jackson 2010).

“breaking out of established patterns in order to look at things in a different way.”

Edward De Bono (1996)

The ideas-lab process enables the investigators to build an overview founded by key information and new associated rules to make connections, providing the means to look at the same information in different ways. It offers the potential to reveal hidden value in a commercial or business situation.

Multiple Perspective Problem Framing method in context

According to The New Oxford Dictionary of English, published 2001, the word 'invent' originated in the late 15th century from Latin 'invent' meaning 'contrived, discovered'; from the verb *invenire*, in – 'into' and venire 'come'. To invent is to create and design something that has not existed before. From the same dictionary, the definition of 'innovate' means to make changes in something established, especially by introducing new methods, ideas and products. Innovation is the action or process of innovating.

Peter Denning and Robert Dunham (2010) described a clear distinction between invention and innovation in the book 'The Innovator's Way – Essential practices for successful Innovation.' Invention being the creation of a new idea or concept at seed stage and innovation being the process to get the developed invention adopted enabling change. Invention is a means of generating innovation.

An example is Tim Berners-Lee who invented a program called Enquire that could link information on any computer with any other computer in his spare time whilst working at CERN. The invention was a culmination of a life's work founded on Richens (1956) and Collins (1969) work to develop networks and during the 1980's he noticed a disharmony which he wanted to solve creating the program in 1989 called Enquire. This being the idea, the invention which was prototyped by CERN. Denning and Dunham describe this particular part of the invention/innovation process as 'Sensing' and 'Envisioning' (2010) and consider these attributes to lie within invention. The first webpage was put up through hypertext linking protocol at CERN in 1991 and was introduced to the public for adoption by Tim Berners-Lee. Following almost instantaneous acceptance of the invention, adopters trialled his program and the World Wide Web was born. The invention became an innovation in 1991 with Tim burners Lee being accredited as the innovator for the World Wide Web. Denning and Dunham describe (2010) the attributes of an innovator to be able to present a compelling 'Offering' which third parties or colleagues want to 'adopt' for implementation and to then have the ability of 'sustaining' the offering.

There are many models used during innovation and the product life cycle, the most commonly used are the stage-gate, the pipe line and the diffusion model with open innovation becoming an increasingly popular model for larger companies disconnecting the research and development part of the process enabling third parties to carry the risk and cost.

In his thesis on 'Multiple Perspective Problem Framing', English (2011) proposes that our capacity for innovation is dependent upon the way we are able to perceive problems and opportunities. As such it is framed by a radical constructivist epistemology that makes two main claims: "(a) knowledge is not passively received but actively built up by the cognizing subject; (b) the function of cognition is adaptive and serves the organization of the experiential world, not the discovery of ontological reality" (Glasersfeld, 1989).

The investigators use the ideas-lab process to create a new space, a 'value arena'. Enabling investigators skilled in the art to interact with companies providing the platform to reveal hidden

value. The revealed value is always derived through evaluating the relationships between technology, intellectual property and commercial strategy set against the investigators set of relational rules. The company information gathered and company capabilities are considered within the value arena. The outcome is in the form of a report defining key areas or cornerstones for the company to look to generate the revealed value. The ideas-lab process crosses the boundaries of invention and innovation. Whilst the outcome is always associated with creation of new concepts/ideas or market applications (invention), it is beneficial to use the method in preparation for commencing the innovation process and during the process as a means to create an overview or snapshot in time. This can be used a as a reference, strategy to market or health check enabling the board to make the right decisions or as a means to make change based on independent appraisal. Company 15 commented *"The report highlighted in writing what the company had already thought which gives Peter confidence from an independent body to work out now how to go about implementing the course of action for some of the points raised."*

To date the investigators have been unable to find a similar method for comparison. Whilst methods do exist to assess technology, company capability, process and structure they tend to relate to risk assessment or feasibility studies for investor diligence purposes or leaning off cost and time with current resources as opposed to creating the opportunity to reveal hidden value already existing in the company. Deming, W.E. (1982), Business process mapping defines what a business entity does and to what standards the process should be done by with recommendations. However these recommendations are not related to technology and IP and do not create value propositions around new market opportunities and concepts associated with this area. Similarly, Toyota originated the Value Stream mapping concept, formerly known as 'material and information flow mapping' by Rother, M (2003). This process analyses the flow of materials and information required to bring a product to a consumer. A lean manufacturing tool designed to eliminate time and reduce costs rather than generate concepts which can be aligned to company resources. The closest method is the single centre of enquiry mapping with the shortfalls already described.

Edward de Bono (1996) suggests a way of being creative is to 'think laterally' with very good examples such as the 'digging' example illustrated in figure 3. This demonstrates that if you keep your head above ground, you will be able to see the whole picture rather than becoming blinkered – but what method is available to achieve this for practitioners?

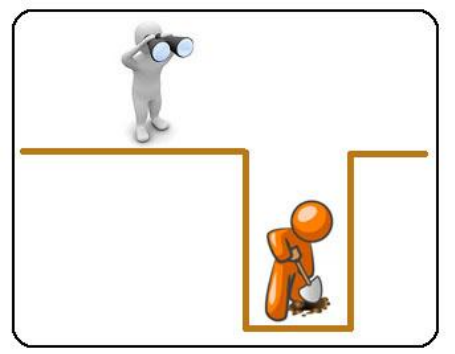

Figure 3: Illustration visualising Edward De Bono's thinking (1996)

2. Practicalities - What we did in practice to model companies – step by step guide

Stage A0 - Finding companies, working within networks and starting the process.

To date 43 companies have been assisted by the ideas-lab process which has been created using the MPPF method combined with organisational design. These companies have either participated through IP firms providing client lists to ideas-lab or ideas-lab creating collaborations within other networks stemming from The Centre for Design research, Northumbria University - such as RTC North and NHS Innovations North. The benefits for supporting ideas-lab are the involvement in projects generated from the report and the opportunity to support the client's revealed value.

After a preliminary phone conversation or meeting has taken place with a company, and the company chooses to progress a quotation is prepared defining the process as follows:

STAGE	**Description**
A1	Company visit
A2	Prepare gathered information for MPPF
A3	MPPF modelling & analysis
A4	Conversation with company, share insights - Report generation
A5	Cornerstones of Innovation Report presentation
A6	Discuss outcome of report and next steps
Stage A1-6	Communication
Outline	• Company visit will last 1/2day and request 2 to 3hrs of your and preferably two other colleagues time. • Further communication maybe required during course of inquiry. Ideas-lab will make contact if this is necessary. • Ideas-lab process, inquiry and analysis will be conducted within the ideas-lab team. Should anyone outside the team be required, you will be notified in advance. • The report will be compiled and presented back to you with an ideas-lab team member following up to discuss next steps.
Deliverables	Stage A • A Cornerstones of Innovation report detailing our findings and making recommendations. • This short report will enable the company to decide if progression to stage B is appropriate.
Duration	3 Weeks duration requiring 7 man days

Figure 4: Describes the 6 stage process, A1-A6, companies experience culminating in the Cornerstones report

A1 Company visit

Interviews during the company visit

The aim of the investigators was to meet with the CEO or MD and another Director relating to the product and an employee operating at ground level to enable the information to be triangulated. The interviews were structured around the template shown in figure 5 providing the 6 centres of enquiry questions. The interview typically lasted between 60 to 90 minutes per person.

Structure of interview with the 6 centres of enquiry questions. (R = rate between a value of 1 to 10)

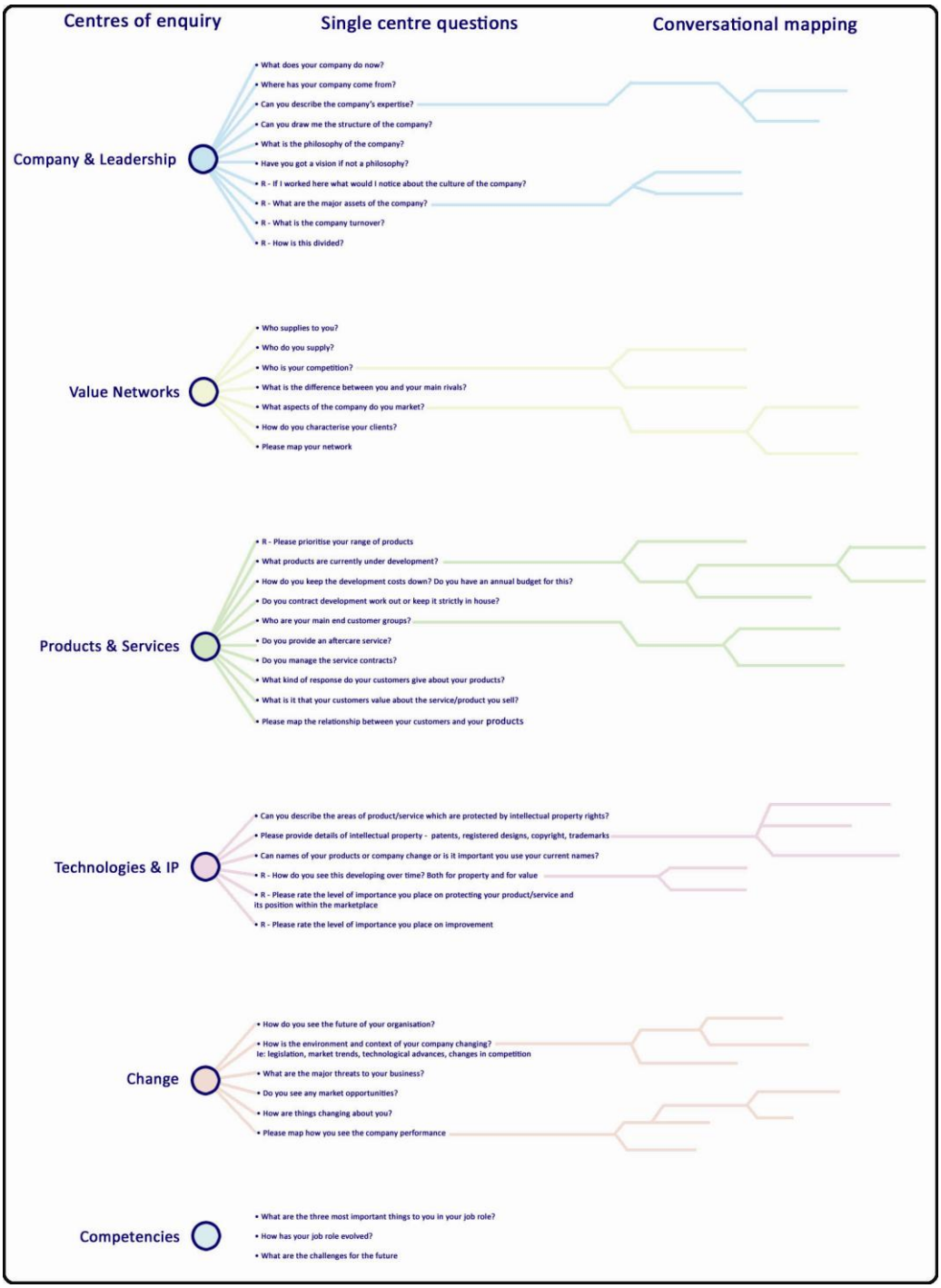

Figure 5: Conversational mapping with structured interview questions (Ward Hadaway 2007)

Figure 5 illustrates how a conversation can unfold with additional questions being asked to probe deeper into certain areas within the 6 centres of enquiry. The importance of conversational mapping and asking the right the questions to unlock hidden value is described later in *'Insights through experiencing the applied knowledge.'* This data gathering exercise is critical and is dependent upon the level of expertise of the investigator.

Observations and additional information

In addition to the interviews, other information is required to complete the picture.

- Request additional literature, brochures and relevant documentation such as copies of patents.
- Tour company and workplace and make observations regarding:
    - company experience,
    - what is there and what is not,
    - company structure and mode of operation,
    - work environment and culture
    - differences between what was said during interview and what is observed during the tour

Ensure the visit concludes by the main point of contact understanding what the next steps are, with timeframe and deliverable.

Reflecting on the company visit, in some cases, the investigator may want to phone individuals who took part to thank them and ask if they have had chance to think about what was discussed. Comment on a few answers they gave to act as a reminder and see if they would like to elaborate or answer any questions considered relevant in preparation for the ideas-lab process stage A2-A3.

Stage A2 to A3 – Ideas-lab process, Value Innovation Modelling - a step by step guide.

Preparation to start the mapping process

Having met with company 'A', the questionnaire will be completed and also any additional information including observations and literature will be to hand having taken the time to prepare this. The questionnaire was focused around the 6 centres of enquiry:

The 6 centres of enquiry

Figure 6: 6 centres of enquiry, (English, Moor & Jackson 2010) positioned on paper to create Value Arena template.

Get 6 different coloured sticky note pads, preferably with the same colours denoting the 6 centres of enquiry and a blank piece of A2 paper with the central part using the 6 centres of enquiry image (figure 6). Around the 6 centres, the page is structured into 6 segments with the central core leading the focus to the strategy cornerstone. An example of the A2 page is as follows:

The Value Arena

The dotted lines in figure 3 value arena template provide a starting point to position information pertaining to each centre of enquiry – the space requirement or shape for each enquiry is likely to change.

The Creative Event

Information Capture

Go through the questionnaire, triangulate the responses to questions and provide additional information and observations of the company and experience. The questions are categorised by the 6 centres of enquiry.

Write down key and pertinent points relevant to the answers provided by company against the questions asked using the colour coded post-it notes. Filter what was captured into, typically, 1 or 2 words or a key phrase (condensed). Through our findings, it is preferred that investigators undertake the ideas-lab process with no rules (removing the blinkers) enabling the investigators to build a picture within the value arena containing the company information gathered which builds the platform to create the whole picture rather than a part.

Once the questions have been discussed and additional information has been presented gathered from the company visit, look at the overall picture and discuss.

Critical Mass

From the provisional overview, the investigators need to at this point engage in conversation positioning the post-it notes in order of importance radiating from the central core being the most important to the edges of the paper being almost periphery information as shown in figure 7. Some post-it notes associated with a single centre of enquiry maybe relocated to connect with another centre of enquiry with new notes being added where applicable. The order of importance can be defined by the set of relational rules the investigators work to for the specific project. These rules will be defined by the investigators' knowledge of the project and what might be deemed as an appropriate outcome. The input of the investigator who gathered the company information is important.

Relational Rules – 1st set

There are two sets of relational rules. The first set relates to the company and project which will come out of the conversational mapping with the company. These rules will define company capability and circumstance, areas to avoid and areas to focus on. This relates to the positional importance of information during the 'critical mass' stage of the ideas-lab process. If for example, during the conversation the investigators discover in 12 months the company wants to adhere to new legislative standards, such as in the case of company 36, this can be considered as a relational rule. This information creates a window of opportunity to be dominant in the field. Therefore the investigators can keep their minds focused on the intellectual property to discover something new or try to find a way through prior art enabling other information to be categorised as more periphery than core in the critical mass.

Figure 7: Illustrating the flow of importance defined by 1st set of relational rules during the 'critical mass' and a photograph of initial information pattern from company 41 (CoIR 2010) at this stage.

Leave the core blank and at this point, as shown in figure 7. Company 41 requires smaller segments for Value networks and Products and Services and company 41 demonstrates how the shape and overall picture can change from the evenly positioned 6 segments at the start in figure 6.

Creating Universal Form: Making the right connections

Look at the bits of information which have now been ordered by importance according to the investigators first set of relational rules defined during the 'critical mass' conversation. Highlight keywords and join together making connections, noticing gaps and disconnects also.

At this point, it is evident if insufficient information has been gathered from the company, we have found the companies who are most forthcoming with information and maintain an open channel of communication benefit.

Driven by the investigators, a pattern starts to emerge from the paper - the emerging strategy. Once the picture has been built up, it is then preferred to discuss possibilities and identify areas of value that create a few concepts at the stage of 'creating universal form' without the second set of relational rules being applied, see figure 8.

Figure 8: Photograph of company 41 (CoIR 2010) – 'creating universal form' identifying areas to reveal hidden value.

Relational Rules – 2nd set

Once these areas of value have been identified and some concepts discussed, to then apply the second set of relational rules. This set of relational rules introduces commercial implications during the process guided by the collective experience and knowledge of the investigators. The rules relate to Need, Value & Cost and the investigators preferably disengage from emotional attachment, metaphorically cutting the umbilical cord enabling greater clarity of judgement. The concepts or areas considered to have commercial value are aligned with relevant stakeholders identifying the attributes under the categories of Need, Value & Cost. Consideration is then given to intellectual property and what the commercial strategy might look like by observing the relationships between technology, intellectual property and commercialisation for this specific project. This becomes a cyclical process.

The ‘creative event’ led by the investigators takes place inside the ‘value arena’ using this sequence:

- Capture information - Six Centres of Enquiry information & observations
- Critical Mass – introduce 1st set of relational rules
- Creating Universal Form – first round of opportunities and area identification
- Introduce 2nd set of relational rules
- Value opportunities & strategy

The sequence between ‘creating universal form’ and creating value opportunities is cyclical and can be repeated and refined as many times as necessary with the investigators observing and reflecting through conversational mapping.

Completing stage A3

By introducing the second set of relational rules to the concepts and areas the rules add commercial rigor to a thought process that had been free to explore all opportunities. This phase of the process provides the confidence for the investigators to define the 4 to 6 opportunities when presenting back to the company.

Figure 8 represents the stage of the process which is revealed to the company with the supporting 4 to 6 opportunities or areas of where to look. Any concepts generated within the particular areas are not disclosed at this stage but are generalised in conversation to support the areas of where the company should look.

Stage A4 - Conversation with company, share insights - Report generation

The investigator who developed the relationship with company ‘A’ then spends time with the main contact discussing the outcome and sharing the insights of the ideas-lab process. This is a very valuable discussion as the outcome is fed back into another conversation amongst the investigators. It is also a time to explore the opportunity of certain concepts generated through the ideas-lab process to see if there might interest in investigating further. This leads to the report being generated.

Stage A5 to A6 - The Cornerstones of Innovation report is presented to the company and the outcome discussed to determine if the company wishes to investigate further.

3. Knowledge and the application of knowledge

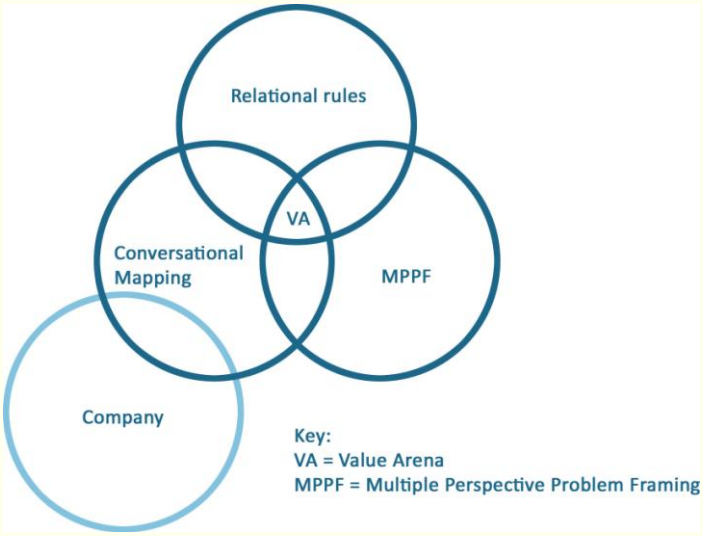

Figure 9: How the investigators see the ideas-lab process mapping onto companies to create 'value arenas'.

Creating a value arena for company evaluation

Company 39's (PI) core business offers a wide range of products to provide odour and dust control in a number of environments, such as sewage treatment works, quarries and foundries. Once stage A1-A3 had been completed the map was as follows:

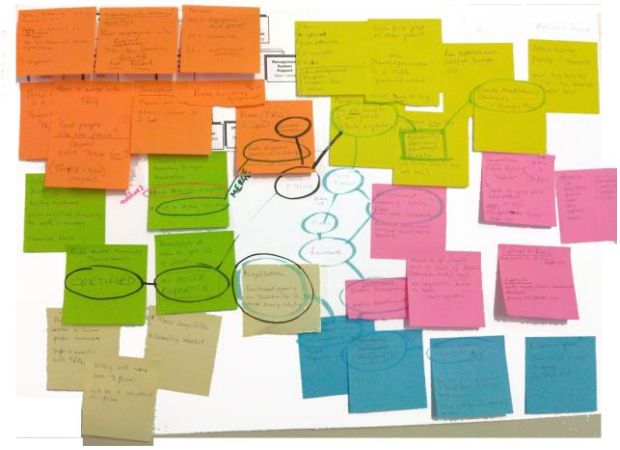

Figure 10: Company 39 (CoIR 2010) – PI – resulting map presented to company in report

After the stage 'A2-A3' was applied with a follow up conversation to PI, (stage A5) the CoIR was presented to PI with the outcome being primarily a health check with a green light save for one particular aspect relating to a recommendation to consider the company's legislative position and marketing message: *"Legislation and company message. Ideas-lab identifies the Environment Agency and developing legislation is crucial to PI's operation as this is the company's route to market. Once the EA is involved with potential PI clients, these clients need to know that PI should be the company to be called as a fast route to solving their problem. PI need to understand the developing legislation and the company need to develop with this. PI need to be placed to exploit this and suggest a way of sending this message out is to emulate the business model of an emergency and rescue service. The*

AA or RAC act as the fourth emergency service. We recommend you look at yourselves as the: "International Rescue service for waste management & water treatment."
Rescue services represent: Reliability (100%), Efficiency (100%), Right equipment for the job – often state of the art and High quality of service" (CoIR company 39 2010)

However, during the ideas-lab process, the investigators identified potential within their existing technology which will be described in the next 'value arena' creation.

Creating a value arena for existing product and IP evaluation within a company.

The CoIR presented back to the company can reveal hidden value already belonging to the company, such as:

- Opportunities to create new product concepts utilising existing IP.
- New market opportunities utilising technology in a different way operating within the resources available to the company at the time. Alternatively, to identify potential adopters (3rd party licence routes) who could develop technology/IP independent of normal company activity creating an additional revenue stream.
- Opportunity to identify resources required to fill gaps.
- Opportunity to identify resources to create strategy/ roadmap to take 'revealed value' to market such as creating an 'entity of value' in figure 'I'.

During the ideas-lab process for company 39, PI, the investigators identified a chemical spray patented by the company which could be useful in other market areas than the market for environmental cleaning. The investigators mapped this opportunity and identified the area of IP that was considered to be the technical innovation. Instead of encapsulating the odour by masking the smell; PI's chemical destroyed the odour at source preventing recurring odours. Once identified, the investigators explored various market opportunities resulting in the retail sector for domestic use and NHS.

Figure 11: Company 39 (CoIR 2010) – new proposition

New company proposition, to create a domestic or healthcare product and develop an intellectual property strategy and identify a substantial company who could under licence take on the chemical formula in a specific application. This would be dependent upon understanding prior art and small chemical trials with a hospital. PI was keen to progress and provided the necessary information with a view to licensing the chemical for a specific market to a large brand name having presence and

existing distribution channels in the same space. PI have setup a new company and transferred specific management across and are currently waiting on trial data from an NHS hospital and establishing funds to progress.

Company 41 (CoIR 2010), MS, a mattress provider. This company provides a single slab high density foam (High specification foam) mattress with unique castellation which are believed to be an improvement upon most mattresses in existence. Whilst trials have not presently been conducted the point of differentiation is in the marketing message which promotes the use of MS mattresses to support an active healthy lifestyle using sportsmen and women to endorse the product. Through the ideas-lab process, the maps in section 'Stage A2 to A3 – step by step guide' relate to this company. The investigators revealed a new market opportunity for MS existing technology which did not have any competition and the retail price point could be very high enabling a significant margin. The market relates to cot beds and the promotion of health benefits for MS specific type of mattresses throughout the newborn, baby to child musculoskeletal developmental stages.

Creating a value arena for new product and IP when the centres of enquiry need to be defined

A client can engage with ideas-lab service to work to a brief within a category to create new concepts. For example, the investigators managed a three month project with Procter & Gamble (P&G) to generate a series of concepts for different markets within the same consumer product category. This terrain was very big and fuzzy and the investigators needed to find a way of navigating. The investigators underwent a mapping process to navigate the design terrain enabling the relevant centres of enquiry to be identified. By identifying the centres of enquiry, this created the value arena in which concepts could be generated in line with the brief. The value arena enabled concepts to be created through the MPPF method and to then be rationalised through internal review and feedback and those selected to be progressed for presentation to consumer focus groups. The mapping process then provided means to understand and evaluate the information gained and make recommendations against the concepts which could be further progressed.

The investigators used an integrated mapping approach to map the consumer product category. Using the brief and other information, the bits of information were laid out on the table and connections were made as shown in map figure 12 to establish the relevant centres of enquiry which are starting to emerge in the second map of figure 12.

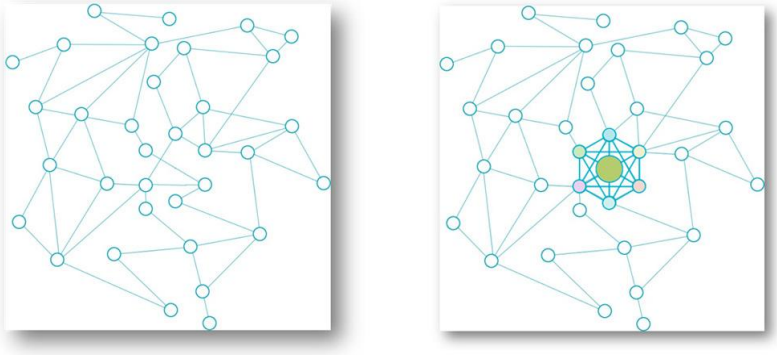

Figure 12: Determining the centres of enquiry

This mapping exploration determined different factors and how they might interrelate. Once the connections were made and the centres of enquiry were established the 'value arena' was defined.

Information within the ‘value arena’ could be gathered pertaining to the centres of enquiry and the ideas-lab process described in Stage A2 to A3 could commence.

Many concepts were generated over the timeframe with 50 students split into teams using the MPPF method. Following this a structure was determined based on the P&G brief within the ‘value arena’ - a range of products and services and a range of ways of using these things.

Figure 13: Structure to position concepts within value arena (P&G project, Northumbria University 2010)

The concepts were then mapped against the structure in figure 13 which made sense of what we had within the terrain. The different post it notes represented the concepts and the different colours represented the team ideas-lab were managing.

The investigators participated in consumer focus groups with the teams and gathered consumer feedback for concepts and mapped feedback over the top of the structure – likes/dislikes & issues arising. The investigators also extracted feedback in isolation and mapped comments made against concepts and then position these overview comments within structure. The concepts were then rated against the quality of P&G consumer feedback received with ranking 1 to 5 by colour so the investigators could see the preponderance of good feedback. Yellow = excellent. This revealed a high rating was achieved on the product side and in particular the mobile arena within structure shown in Figure 13. This map informed us which concepts the teams were going to develop further using of the ideas-lab process by feeding new information during the second set of ‘relational rules’ cyclical sequence.

4. Conclusion - insights through experiencing the applied knowledge

Development of the investigators awareness

This paper describes the ideas-lab process as a step by step guide providing case studies for each of the three identified 'value arenas' in section 3. It explores how the combination of multiple perspective problem framing and organisational design knowledge can be applied to reveal commercial value and opportunity for companies.

The ideas-lab process has been refined over the 43 company assists leading to the introduction of **relational rules** and understanding the importance of **conversational mapping** both during the interview process and during the ideas-lab process stage A2-A3.

Conversational Mapping

Through hindsight review of the first 20 assists, the investigators consider these companies did not receive as beneficial a CoIR report as might have been the case. This is because the investigators have improved with experience. We realised during the mapping process that pertinent information was sometimes missing. This awareness helped the investigators consider how to capture the right information on the meeting day.

Asking the questions from the questionnaire provided a wide ranging variety of information pertinent to the 6 centres of enquiry. However, this information did not necessarily capture the richness and quality required to complete the picture. Conversational mapping enables the investigator to become more conscious and aware of spotting opportunities that can be probed a little deeper. As shown in figure 14, conversational mapping enables the investigator to learn to map out the conversation providing the opportunity to make connections between centres of enquiry in real time.

The investigators have found, during the interview process, the first 30 minutes tend to be formal and responses reserved. Between the first 30 to 45minutes, the openness of response and likelihood of proffering more valuable information is increased primarily because the interviewee feels comfortable.

The investigator needs to have the skill to:

- Understand the character of the interviewee and build a relaxed conversation
- Maintain a level of engagement during conversation to capture the true thoughts of the interviewee
- Think on their feet and learn from the interviewee's responses to questions
- Build up a picture of the conversation making connections to ask trigger questions not present in the questionnaire which will hopefully act as the key to unlocking the value as illustrated in figure 14.

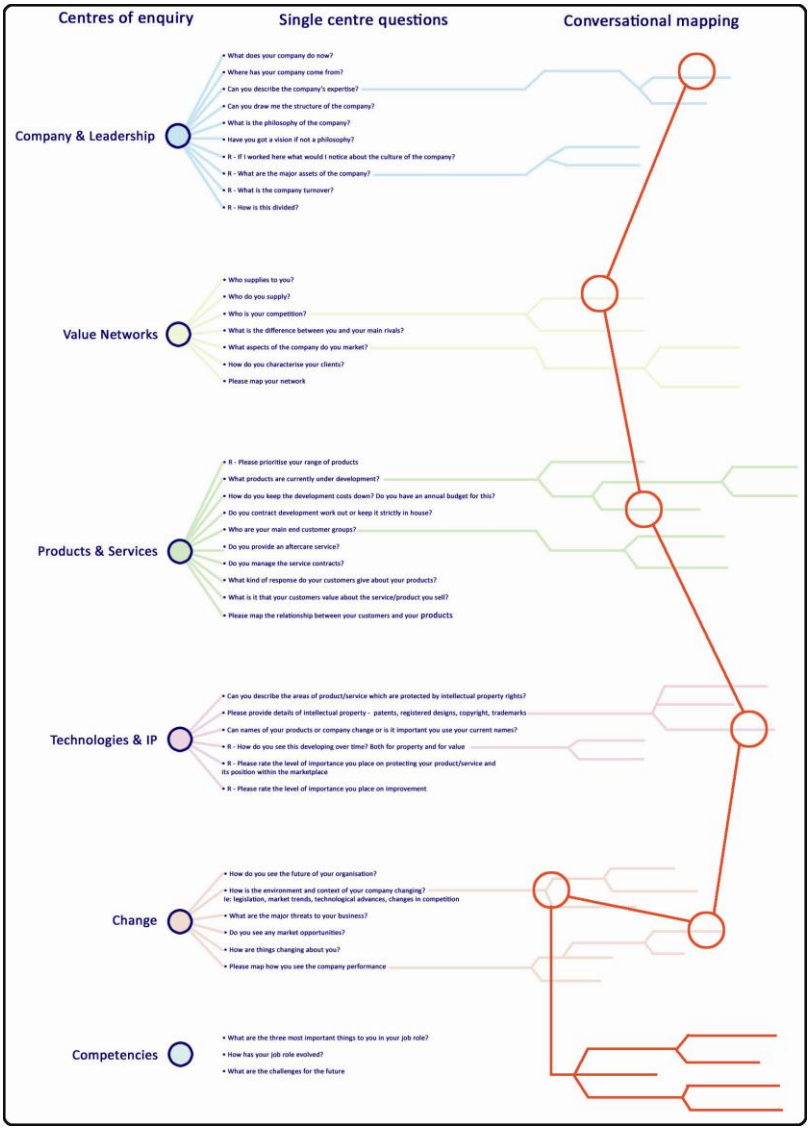

Figure 14: Conversational mapping when investigator is experienced to make connections

Preferably the investigator is a warm, friendly and personable character who can demonstrate intelligence and common ground in some way, but most importantly listens. Towards the end of the interview, we have found it helpful to 'dangle a carrot' in front of the interviewees, incentivising them to take an interest in your next call and the CoIR. To do this the investigator should take a little time to take note of the observations made, digest the conversation and reflect before concluding the discussion with a summary of next steps. Testing the water to gauge a reaction and then drop a golden nugget or carrot if possible. The response will be immediate, whether the comment has been well received or not.

The means used to record the interview is also an important consideration. If a digital recorder is used, often the interviewee clams up and refrains from disclosing more sensitive and fragile information but instead sticks to formal responses. We find pen and paper works best.

During stage A2-A3, conversations are very important and conversational mapping has helped the investigators awareness of the design terrain. It is essential that these conversations are allowed to develop in a dynamic, fluid and organic way.

Relational Rules – discarding existing rules and creating new sets through conversational mapping

Enabling investigators to face a problem or potential opportunity with 'fresh eyes' and an open approach has been a strength of the process (English, Moor & Jackson 2010). Although it is beneficial to have an understanding of the company before the meeting day takes place, it is critical that there is no prior indoctrination into the company's processes and 'ways of doing' – their relational rules. The key, we believe, is to extract information independent of any existing rules.

Through a structured interview process between interviewer and interviewee, company information is collected during conversational mapping. This information is defined as structured answers to the questions offered by the interviewee. The answers are bits of information bound by a set of relational rules (the structure) associated with the company, prior knowledge and ways of doing. To reveal hidden value during the ideas-lab process, the interviewer needs to break the information apart into components and discard the existing set of relational rules and collect the bits. The components that remain can be cracked open to reveal smaller elements. Looking at chemistry, by way of example, the 'cracking' process yields smaller molecules which can be utilised in different ways. During the interview, using conversational mapping, it is preferable to break the components down enabling additional questions to be asked – described as 'trigger questions' in the conversational mapping section.

In a sense, the investigator arrives on the meeting day with an empty bucket, and leaves with a bucket full of bits of information. This bucket is then tipped over a table during stage A2-A3 of the ideas-lab process and organised in a way that certain elements of the information become like 'free radicals' – highly active and looking to connect. The investigators' aim is to identify those bits and make the connections. The connections are made by a new set of relational rules which are defined by the investigators using conversational mapping within the ideas-lab process.

"breaking out of established patterns in order to look at things in a different way."

Edward De Bono (1996)

Understanding how relational rules are broken down during conversation with the bits of information being built up through a new construction defined by a new set of relational rules is in its infancy and further investigation is required.

Usefulness of the ideas-lab process

To date we have maintained the 80% rate of revealing value to companies as described in the paper English, Moor & Jackson (2010). However, we have more recently been challenged to find appropriate companies within the regional SME community who are able to take on projects to the next stage. For example, company 34, 37 and 40 (CoIR 2010) did not have the means to finance future developments and due to the economic downturn were forced to focus on core activities meaning the revealed value would 'sit on a shelf'. Other regional companies who were keen to participate disclosed to us during conversation that they had been affected by the recession and could not allocate the resources to embark on the ideas-lab process. Arguably this is the ideal time when companies most need change and the investigators want to look at ways of being able to support companies to participate through stage A of the ideas-lab process and to offer routes that enable companies to realise the revealed value. For example, with a non SME company, the investigators worked with ThermoFisher Scientific for another project similar to the Procter & Gamble project. The outcome was that ThermoFisher are developing the revealed value and taking a particular concept forwards for market launch this year, 2011. The resources are available meaning additional revenue streams can be realised.

Over the three years of running ideas-lab, the initial process took up to 6 weeks to present a CoIR report from the first meeting day. This resulted in some companies being surprised by the shortness of the report. The investigators learnt from this and developed a 2-3 week turnaround timeframe informing the company what to expect in the report. The investigators became quicker the more assists we completed and by company 30, we can now conduct the complete ideas-lab process stage A2-A3 in half a day requiring 7 man days in total.

In parallel with assisting companies, the investigators are developing a short three day workshop which enables participants to harness creative thinking tools, the ideas-lab process, for commercial reward. The course is suited to industry leaders, senior executives and managers of technology and design oriented organisations wishing to inject new approaches into their business in order to generate additional revenue streams or increase revenue from existing product lines.

The researchers have created Workshop stationary pack for each attendee comprising:

i) 1 x sheets of 'Centre of Enquiry' questions (A4) double sided
ii) 1 x set of Ideas-lab branded post-it notes (6 coloured pads per set)
iii) 1 x flip chart pad of 10 sheets of A2 cut to square shape (Value Arena) – figure 9
iv) 1 x set of ideas-lab branded marker pens – Black, Red, Blue & Green
v) 1 x booklet – step-by-step guide to ideas-lab process

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Appendices

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Since graduating from the Design for Industry course at Northumbria University in 1999, Tim has built a portfolio of his own product inventions from seed to fruition resulting in saleable or exploitable commercial product opportunities supported by strong global intellectual property (IP) portfolios for consumer and healthcare products. Evidence can be found on the shelves of quality national retailers such as Boots, Mothercare and Asda in the UK with consumer and stakeholder endorsements including national awards such as the Gold award for best innovative product of the year 2009/2010. His experience includes influencing key stakeholders, managing networks of relationships and cross functional teams enabling commercially viable ideas to become adopted through the innovation process. He has over 70 patents to his name and his ideas have attracted £4m in investment. Market capitalisation of these technology start up companies, such as Oxford Medical Diagnostics Limited, amount to over £20million and are on target to achieve their predicted exit valuations. Tim has an appetite to build product ranges and work with new start ups through the seed and development phase up to the point of market launch.